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(54) Title: ORGANIC FIBERS AND TEXTILE PRODUCTS

(57) Abstract: A high-strength, heat-resistant organic fiber and textile product each comprising or having coated thereon an aqueous emulsion is provided. The emulsion comprises or is produced from a fluorocarbon silane or an emulsion, said emulsion comprises or is produced from (1) a fluorocarbon silane or its hydrolyzate, (2) water, and (3) optionally a surfactant, an alkoxysilane compound, catalyst, or combinations of two or more thereof; said fluorocarbon silane having the formula R_f(CH₂)_p-Si{-(O-CH₂CH₂)_n-OR¹}₃; R_f is a C₃₋₁₈ perfluoroalkyl group or combinations of two or more thereof; each R¹ is independently one or more C₁₋₃ alkyl groups; p is 2 to 4; and n is 2 to 10. Also disclosed is a process for producing the emulsion, the fiber, and the textile product.



CLASSIFICATION OF SUBJECT MATTER C 7 D06M13/513 D06M D06M15/643 D06M15/657 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) D06M IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages Category ° 1,3-11 WO 95 23804 A (DU PONT) X 8 September 1995 (1995-09-08) page 8, line 31 -page 9, line 2; claims; WO 02 31062 A (IWATO SATOKO ; KAKU MUREO . 1,2,8 X (JP); DU PONT (US)) 18 April 2002 (2002-04-18) page 7, line 22 - line 28; claims 1,2,8 χ WO 01 90267 A (IWATO SATOKO ;KAKU MUREO (JP); DU PONT (US)) 29 November 2001 (2001-11-29) claims Patent family members are listed in annex. Further documents are listed in the continuation of box C. Special categories of cited documents: *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance invention earlier document but published on or after the International "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-O document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means document published prior to the international filing date but later than the priority date claimed *&* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 12 February 2004 20/02/2004 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Koegler-Hoffmann, S Fax: (+31-70) 340-3016

INTERNATION SEARCH REPORT

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	PC		03/26329	·

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Patent document cited in search report	Publication date		Patent family member(s)	Publication date
WO 9523804 A	08-09-1995	US	5550184 A	27-08-1996
WO 9525004	00 03 2330	ΑŬ	693529 B2	02-07-1998
		AU	1937695 A	18-09-1995
		CA	2182869 A1	08-09-1995
		DE	69506848 D1	
		DE	69506848 T2	05-08-1999
		ĒΡ	0748323 A1	
		JP	9509939 T	07-10-1997
		WO	9523804 A1	08-09-1995
		US	5552476 A	03-09-1996
WO 0231062 A	18-04-2002	JP	2002121486 A	23-04-2002
		US	2003059624 AI	27-03-2003
		AU	9651701 A	22-04-2002
		CA	2423203 A1	
		EP	1325087 A2	2 09-07-2003
		WO	0231062 A2	2 18-04-2002
WO 0190267 A	29-11-2001	JP	2001329174 A	27-11-2001
		JP	2001335693 A	04-12-2001
		CA	2405277 A	
		CN	1434843 T	06-08-2003
		EP	1285032 A2	
		JP	2003534439 T	18-11-2003
		WO	0190267 A	
	•	US	2003212196 A	1 13-11-2003